10-10-00

UTILITY PATENT APPLICATION TRANSMITTAL

A

jc915 U.S. PTO
10/06/00

Assistant Commissioner
for Patents
Box: Patent Applications
Washington, D.C. 20231

Docket No. 420-002
Express Mail: EL668226905US

jc675 U.S. PTO
09/684032
10/06/00

First Name of Inventor/Application Identifier: CHRISTOPHER S. NOLAN

[X] Fee Transmittal Form

[X] Specification - Total Pages: 18

[X] Drawings (X) Informal ( ) Formal Total Pages: 2

[X] Declaration for Patent Applications - Total Pages: 2
- [X] Newly Executed
- [ ] Unsigned
- [ ] Copy from prior application
- [ ] Deletion of Inventor(s)

[X] Small Entity Statement - Total Pages: 2

[ ] Statement filed in prior application and still proper and desired

[X] Return Receipt Postcard

[ ] Incorporation By Reference - The entire disclosure of the prior art application, from which an oath or declaration is supplied is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

[ ] Certified Copy of Priority Documents

[ ] Preliminary Amendment

[ ] Other: _____

If a Continuing Application

[ ] Continuation [ ] Divisional [ ] Continuation-In-Part

of prior application no.: _____

KING AND SCHICKLI

Customer No. 001009

J. Ralph King
Registration No. 22,489

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on 10/6/00

Date October 6, 2000 Lokie Jones

FEE TRANSMITTAL

TOTAL AMOUNT OF PAYMENT: $355.00
SERIAL NO.:
FILING DATE: Concurrently herewith
FIRST NAME OF INVENTOR: Christopher S. Nolan
DOCKET NO.: 420-002

[X] Payment
[ ] The Commissioner is hereby authorized to charge indicated fees and credit any overpayment to Deposit Account No. 11-0978 in the name of KING AND SCHICKLI.
[X] Charge any additional Fee Required under 37 CFR 1.16 & 1.17.
[X] Check

TOTAL CLAIMS		EXTRA CLAIMS
TOTAL:	11	0
INDEPENDENT:	2	0

FEE CALCULATION

1. FILING FEES

Fee Code			Fee Description	Fee Paid
101/201	$710	$355	Utility Filing Fee	$355.00
102/202	$80	$40	Excess of 3 Ind. Claims	
103/203	$18	$ 9	Excess of 20 claims	
104/204	$270	$135	Multiple Claims	
106/206	$320	$160	Design Filing Fee	

2. ADDITIONAL FEES

105/205	$130	$65	Missing Parts	
139/139	$130	$130	Non-English Specification	
147/147	$2520		Request for Reexamination	
115/215	$110	$55	Extension of Time - 1 Month	
116/216	$390	$195	Extension of Time - 2 Month	
117/217	$890	$445	Extension of Time - 3 Month	
119/219	$310	$155	Notice of Appeal	
120/220	$300	$150	Appeal Brief	
121/221	$270	$135	Request for Oral Hearing	
142/242	$1210	$605	Utility Issue Fee	
143/243	$430	$215	Design Issue Fee	
122/122	$130	$130	Petitions to the Commissioner	
126/126	$240	$240	Submission of IDS	
114/214	$150	$75	Provisional Appl. Filing	
			Other:	

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Attorney Docket No. 420-002

Applicant or Patentee: **CHRISTOPHER S. NOLAN**
Serial or Patent No.:
Filed or Issued: **CONCURRENTLY HEREWITH**
For: **LINER FOR CONTAINER WITH SIDE DOOR**

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b)) - SMALL BUSINESS CONCERN

I hereby declare that I am

[ ] the owner of the small business concern identified below:
[X] an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: **Eagle Protective Plastics, Inc.**
ADDRESS OF CONCERN: **222 West 6th Street, Jeffersonville, IN 47130**

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled **LINER FOR CONTAINER WITH SIDE DOOR** by inventor **CHRISTOPHER S. NOLAN** described in

[X] the specification filed herewith
[ ] application serial no. _____, filed _____
[ ] patent no. _____, issued _____

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d), or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). *Note: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).

NAME:
ADDRESS:
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which the status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING: **CHRISTOPHER S. NOLAN**
TITLE OF PERSON OTHER THAN OWNER: PRESIDENT
ADDRESS OF PERSON SIGNING: 222 West 6th Street, Jeffersonville, IN 47130

SIGNATURE Christopher S Nolan DATE 9-26-2000

LINER FOR CONTAINER WITH SIDE DOOR

Technical Field

The present invention pertains to moisture proof liners for containers and, more particularly, to a liner and the related installation system where transfer of the cargo into and out of the container is through a side door.

Background of the Invention

In the past, there have been many proposals for providing a liner in a cargo container for protection against moisture. This concept has found widespread use in transporting many types of cargo, including tobacco products, paper products and other articles that are particularly susceptible to moisture damage.

Going back several decades, one of the first approaches to the basic concept was to provide a bag for holding bulk material in an open dump trailer. Other related early approaches included placement of a flexible liner in a hopper-type trailer to allow the trailer to be converted to hauling of non-bulk articles. Other specialized applications for open trailers or trucks are described in the prior art patents and literature.

A departure from this early line of development is set forth in a series of issued U.S. patents, now owned by the assignee of the present invention. In particular, three of these patents are of importance in forming the background of the present invention; namely, U.S. Patents 4,671,733, issued June 9, 1987, 4,863,339, issued September 5, 1989 and U.S. Patent 5,059,084, issued October 22, 1991. These commercially successful liner systems provide important background teachings as a basis for the present invention.

In contrast to the prior art represented by these patents, and others, there is a need for providing a system for cargo shipping containers, characterized by a side, rather than end door for transfer of the cargo into and out of the container. One example of such a container is a standard rail car having a side opening door. However, it is to be understood that the need applies to other containers, such as for semi-truck trailers with a side door, so as to be adapted for side

platform cargo transfer, and side loading ship containers, as well as other like containers. In all instances, the need is for a cost effective way to protect vulnerable cargo from moisture damage. In addition, the ideal solution must provide for easy and rapid erection of the liner, rapid and protected loading of the cargo through an enclosed tube, and efficient closing of the container after loading. Furthermore, once the delivery location is reached, unloading must also be a simple process, including easy release of the closure and protected unloading of the cargo.

Summary of the Invention

The present invention comprises a novel moisture proof liner for installation in an elongated container for shipping cargo, where the transfer of the cargo is through a side panel of the liner, which matches with the side door of the container. The side, top, bottom and end panels are formed of impervious film adapted to substantially match the corresponding walls of the container when erected. An access opening is provided along at least one side panel through which the cargo is loaded and unloaded. After loading, a closure for the opening seals the liner against moisture to protect the cargo. At the transport destination, the closure is removed and the cargo is easily transferred out of the container onto the loading dock

or platform. In some cases, it is desired to have loading and unloading capability from both sides of the container, and in this case a second opening is formed opposite the first opening to mate with the opposite door.

Preferably, the access opening includes an open tube attached at one end to form a passage for loading and unloading the cargo. Both the liner and the tube are formed of plastic sheet, preferably polyolefin film. The passage formed by the tube may be extended to a covered loading dock utilized to protect the dock personnel and cargo during the transfer operation during inclement weather.

In order to attach the end of the tube to the access opening of the liner, a peripheral heat seal bead is formed by applying heated sealing jaws across the overlapping flaps of the side access opening of the liner and the end of the tube. The side panels include gussets to allow expansion of the liner for substantially filling the container as it is erected. A vacuum is generated inside the container by vacuum manifolds to lift the liner into position until it is fully extended against the walls. If necessary or desirable, the initial erection process can be assisted by providing positive pressure from a blower through the tube and access opening. The end panels are formed by folded over sections of the gusseted panels with a heat

seal bead extending across the gussets.

In the related method, a liner having four panels of impervious film that matches the sides, top and bottom of the container, plus two end panels are provided. An access opening is cut vertically along at least one side panel, the liner is positioned in the container and erected so as to substantially fill the same. The cargo is transferred through the opening and finally the opening is closed to seal the liner against moisture so as to protect the cargo.

Preferably, an open ended tube is attached around the opening on the side panel and the cargo is passed through both the tube and the opening during its transfer. Additional method steps, referenced with respect to the liner as set forth above, include forming an opening on both sides of the liner. The upper corners of the free end of the tube may be attached by clips to overhead lines to hold the passage open during cargo transfer, and if sufficiently extended assist in protection during cargo transfer in inclement weather.

Still other novel features and advantages of the present invention will become readily apparent to those skilled in this art from the following description wherein there is shown and described a preferred embodiment of this invention, simply by way of illustration of one of the modes best suited to carry out the invention.

As it will be realized, the invention is capable of other different embodiments, and its several details are capable of modifications in various, obvious aspects all without departing from the invention. Accordingly, the drawings and descriptions will be regarded as illustrative in nature and not as restrictive.

Brief Description of the Drawings

The accompanying drawings incorporated in and forming a part of the specification, illustrate several aspects of the present invention, and together with the description serve to explain the principles of the invention. In the drawings:

Figure 1 is a perspective view of a rail car with a liner positioned in the bottom of the car, and with the liner erection just beginning through use of vacuum introduced into the rail car and/or positive pressure introduced into the liner;

Figure 2 is an enlarged cut away side view showing the access opening formed in the liner and the liner initially attached by retainer clips to the doorway of the container and illustrating the flow of air generated by the vacuum continuing to lift the liner to the erected position;

Figure 3 is a top view with a cross section through the walls of the container, and illustrating a second opening on the

opposite wall of the container to allow transfer of cargo from either side;

Figure 4 is an enlarged, cut away side view of the liner illustrating the manner of attachment of the transfer tube around the periphery of the access opening, and also illustrated in Figure 4a is a detail of sealing the end panel by forming of a heat seal bead across the gusseted end; and

Figure 5 is a cross sectional, cut away view of the liner of Figure 4 illustrating in detail the attachment of the tube to the side panel of the liner, and in Figure 5a illustrating the detail of the attachment across the overlapping flaps.

Reference will now be made in detail to the present preferred embodiment of the invention, an example of which is illustrated in the accompanying drawings.

Detailed Description of the Preferred Embodiment

With reference now to the drawings, and in particular to Figure 1, a conventional rail car 10 is illustrated for purposes of disclosure of one use for a moisture proof liner 11 fabricated in accordance with the principles of the present invention. As illustrated in Figure 1, the liner 11 is in the initial stages of being erected inside the container 10. As set forth in the prior U.S. Patents

'084, '339 and '733 owned by the assignee of the present invention, a pair of upstanding manifolds 15, 16 are attached to vacuum hoses 15a, 16a to corresponding vacuum pumps or the intake side of blowers 15b, 16b. As the container 10 is evacuated on the inside through the arrays of orifices 17, 18 respectively (see Figure 2), the liner 11 is progressively lifted into place corresponding to the walls W of the container 10 (note the flow arrows in Figure 2, and the lift arrows of the liner 11). Retainer clamps 19 may be placed to extend around the doorway of the container in order to hold this section in place during the initial erection process. Also, positive pressure can be generated inside the liner 11 by a blower 20 positioned on loading dock D, if desired or necessary, especially for initial lift assist.

The particular structure of the moisture proof liner 11 in accordance with the present invention can be seen more in detail by reference also to Figures 4-5 of the drawings. Specifically, the liner 11 is formed of impervious film, such as polyolefin; however, it is to be understood that the film can be formed of other plastics or materials as long as the moisture sealing properties are sufficient. The liner 11 includes a first, elongated side panel 25 and an opposite like side panel 26. A top panel 27 and a bottom panel 28 are also illustrated (see the side view of Figure 4). Each of the side panels 25, 26 includes a gusset 29, 30, which as illustrated in Figures 4 and

5, takes the form of an inward fold along the full length of the panels. This allows the positioning of the liner in the bottom of the container 10 in a compact manner, as shown in Figure 1. During erection, the inward gussets 29, 30 do, of course, straighten so that the full height of the container can be filled with the liner 11.

First and second end panels 34, 35 complete the liner 11 and these are formed by folding over the gusseted end sections and then heat sealed, as will be explained later in detail.

In accordance with the present invention, an access opening 40 is cut into at least the one side panel 25 and is adapted for loading and unloading the cargo. An open tube 41 is attached by heat sealing to the side panel 25 in a manner also to be described below. This tube 41 provides for a protected passage during transfer of cargo into and out of the liner (see the action arrows of Figure 3). The free end of the tube 41 may be held open at the upper corners by clips 43 and attached overhead lines 44 (see Figure 3). Ideally, the tube 41 extends a sufficient distance so that protection from inclement weather is afforded when the lines 44 can be attached to the loading dock overhang. Once the cargo is moved into position in the liner 11, a closure is applied in order to protect from entry of moisture (see Figure 5 of the drawings). The closure may be formed by a tie or crimp ring 45 holding a gathered section of the tube 41.

As illustrated, the access opening 40 is preferably positioned at approximately the midpoint of the side panel 25, which corresponds to a conventional rail car side doorway 50 (see open position in Figure 3). It is to be understood that in accordance with the broadest aspects of the present invention, the container 11 may be another type of container, such as a truck trailer or container for an ocean going vessel so long as the opening is on the side.

In accordance with another aspect of the present invention, a second doorway 55 can be made functional on the opposite side of the container 10 through a second opening 40a and tube 41a. As will be appreciated, cargo can then be transferred into and out of the liner 11 from both (or either) sides. In the dotted line position, the tube 41a can also be closed by a crimp ring 45a.

With reference to Figures 4-5, the related method of the present invention can be reviewed in detail. The liner 11 is originally formed as an extruded tube with the gussets 29, 30 folded in and extending along the full length. In the preferred embodiment, the gussets extend inwardly to approximately the longitudinal midpoint. When expanded, the liner 11 thus expands to a height of two times the width, which approximates the dimensions of a standard rail car or truck trailer.

To form the end panels 34, 35, the gusseted liner is

folded across the ends and a heat seal bead 60 is formed, thus closing the liner 11. To form the heat seal bead 60, conventional heated sealing jaws (not shown) may be used to squeeze the plies of plastic together. The heat is just sufficient to melt and fuse the plastic together to form a moisture proof barrier.

Once the end panels are formed, the liner 11 is in the form of a closed bag. In accordance with the preferred embodiment of the invention, the access opening 40 is cut into the side panel 25. The cut forms the raw edge 61 that is folded back on the side panel 25, as best seen in Figure 5a, and forms a first flap 62. The tube 41 is folded back on the adjacent end to provide a corresponding second flap 63. To seal the tube 41 to the liner 11, a heat seal bead 64 is provided by applying heat and pressure through conventional sealing jaws (not shown).

In summary, the results and advantages of the present invention can now be readily understood. The liner 11 includes two elongated side panels corresponding to the sides 25, 26 of the container, along with the corresponding top and bottom 27, 28. The sides include the gussets 29, 30 extending along the full length and the ends are folded over to form moisture proof end panels 34, 35. The access opening 40 is formed by cutting through at least one side panel 25 to allow transfer of the cargo in and out of the container 10.

The tube 41 is attached by heat sealing along the corresponding flaps 62, 63. By gathering the free ends of the tube, applying the tie or crimp ring 45 and tucking it into the container, the protection of the cargo from moisture is assured. The opposite side panel 26 can also be provided with an access opening 40a, if desired for faster cargo transfer. The liner 11 is thus characterized by providing an efficient and economical way to protect cargo in a side door container, such as a rail car or truck trailer. The liner is easily erected into position in the container and rapid, easy and protected loading and unloading is assured.

The foregoing description of the preferred embodiment of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Obvious modifications or variations are possible in light of the above teachings. The embodiment was chosen and described to provide the best illustration of the principles of the invention and its practical application to thereby enable one of ordinary skill in the art to utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. All such modifications and variations are within the scope of the invention as determined by the appended claims when interpreted in accordance

with the breadth to which they are fairly, legally and equitably entitled.

Claims

1. A moisture proof liner for an elongated container for use in shipping cargo, comprising:

four elongated panels of impervious film adapted to substantially match the elongated sides, top and bottom of said container;

first and second end panels to complete said liner;

an access opening along at least one side panel adapted for loading and unloading said cargo; and

a closure for said opening to seal said liner against moisture to protect the cargo.

2. The liner of Claim 1, wherein said access opening includes an open tube attached at one end to extend laterally from

said opening to thereby form a passage for loading and unloading said cargo.

3. The liner of Claim 2, wherein said liner and said tube are formed of plastic sheet and a heat seal bead extending around said orifice between said one side panel and the adjacent one end of said tube.

4. The liner of Claim 3, wherein said closure is formed by a tie around the tube adjacent the other end and adapted to be tucked inside said container after loading.

5. The liner of Claim 1, wherein the access opening is approximately at the mid-point of said one side panel.

6. The liner of Claim 1, wherein is provided a second access opening including a tube in the second side panel substantially opposite the first opening for also loading/unloading said cargo and a second closure for said second opening.

7. The liner of Claim 1, wherein the side panels include gussets to allow expansion for substantially filling said

container when said panels are fully extended.

8. The liner of Claim 7, wherein said first and second end panels are formed by folded end sections of the gusseted side panels and a heat seal bead extending across the gussets of said end sections.

9. A method of installing a moisture proof liner for an elongated container for use in shipping cargo, comprising the steps of:

providing said liner having four elongated panels of impervious film adapted to substantially match the elongated sides, top and bottom of said container and first and second end panels to complete said liner;

cutting an access opening along at least one side panel adapted for loading and unloading said cargo;

positioning said liner in the container;

erecting the liner to substantially fill the same;

transferring said cargo through said opening; and

closing the opening to seal said liner against moisture to protect the cargo.

10. The method of installing a liner of Claim 9, wherein is further provided the step of:

attaching an open ended tube to said one side panel to mate with the opening; and

passing said cargo through both said tube and said opening during transfer.

11. The method of installing a liner of Claim 10, wherein is further provided the step of:

holding open the free end of said tube overhead by lifting the upper corners and for protection from increment weather during cargo transfer.

Abstract

A moisture proof liner and method for installing the liner in an elongated container for shipping cargo is provided. Four elongated panels of impervious film matching the sides, top and bottom of the container and first and second end panels make up the liner. An access opening is cut vertically along at least one side panel through which the cargo is transferred for loading and unloading. A closure is provided to seal the liner to protect the cargo from moisture. An open tube is attached to the side panel to match the opening and form an extended passage for loading/unloading the cargo. The liner and the tube are formed of polyolefin plastic sheet and a heat seal bead extends around the opening to join the tube. A second access opening and tube can be formed on the opposite side panel. Gussets in the side panels allow expansion to substantially fill the container when differential pressure is applied. The end panels are formed by folding the ends of the gusseted panels. A related method comprises the steps of providing said liner to be placed in the container, cutting an access opening in at least one of the side panels, attaching a lateral tube to form a transfer passage, positioning the liner in the container and erecting the liner by differential pressure, holding the tube open, transferring the cargo through the opening and closing the opening to seal the liner.

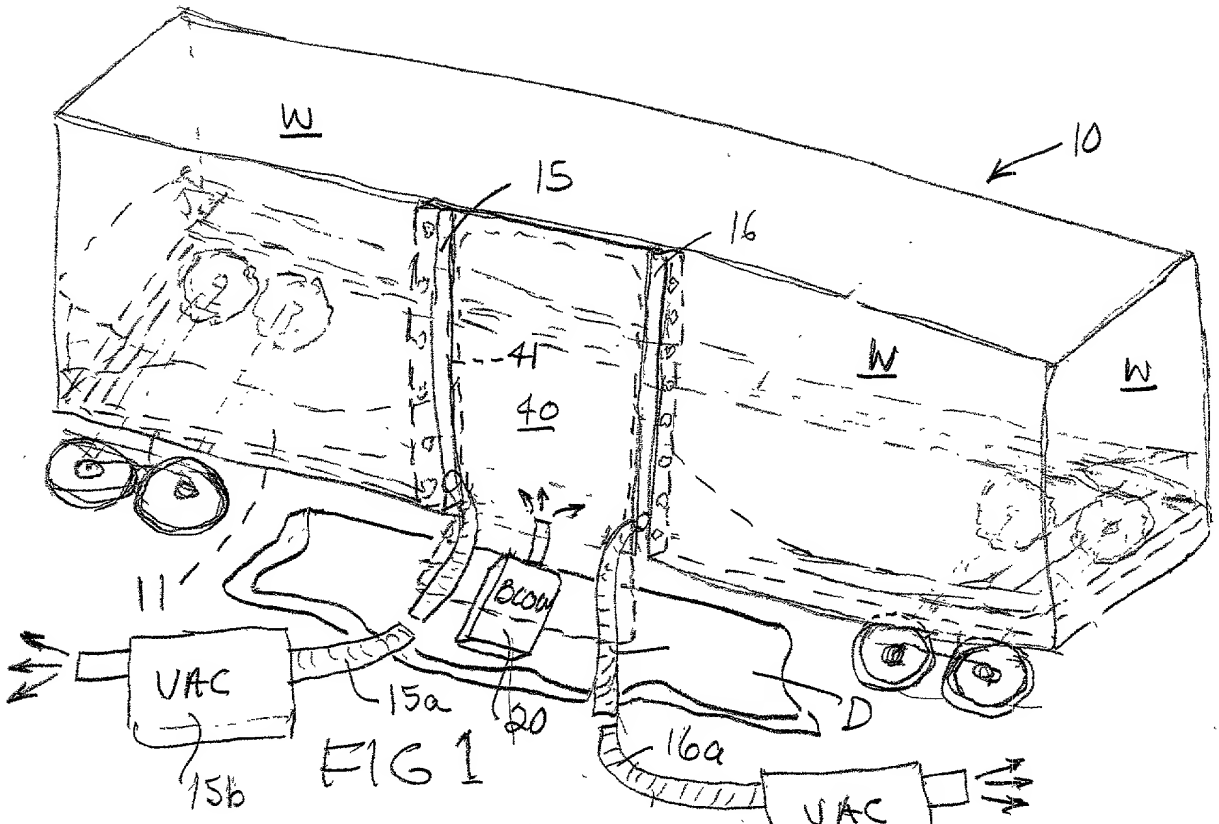

FIG 1

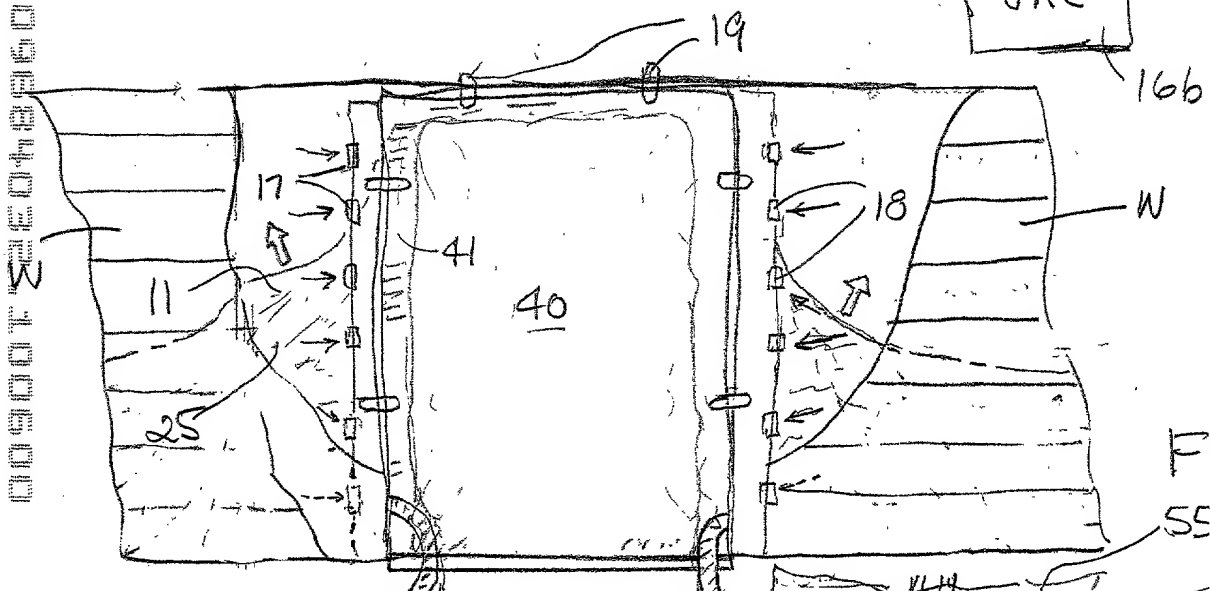

FIG 2

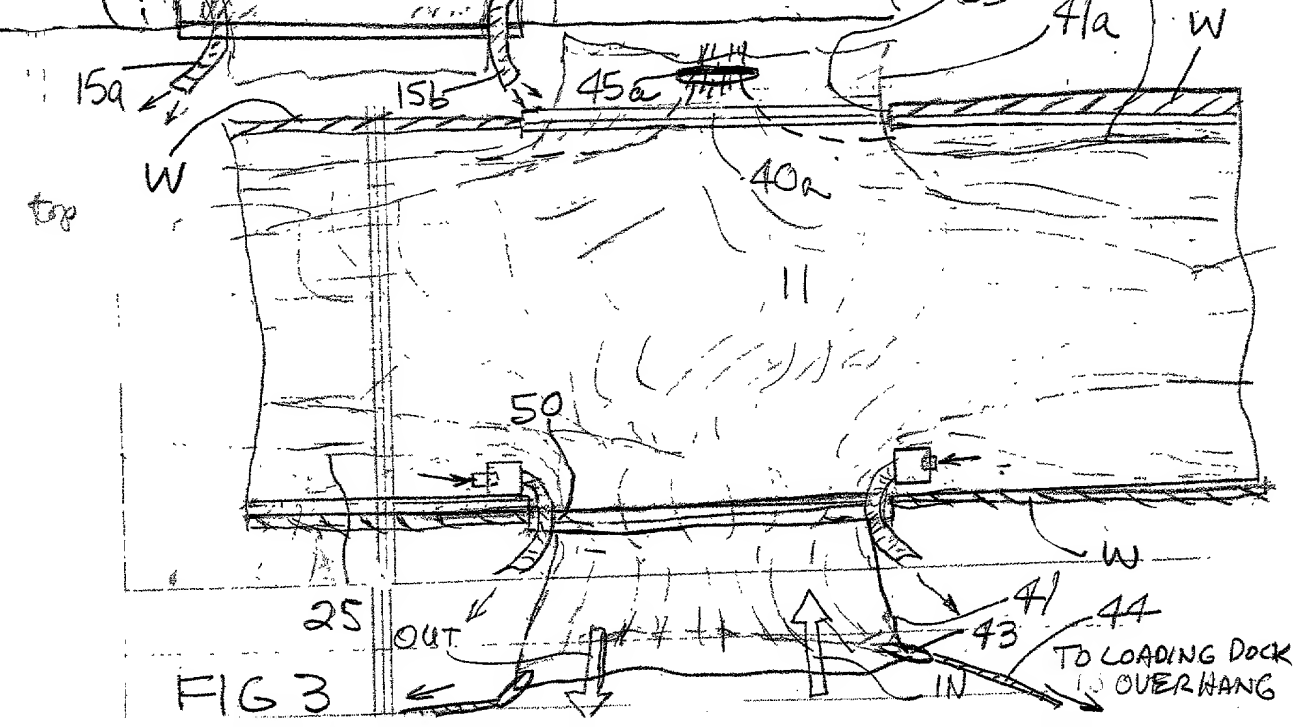

FIG 3

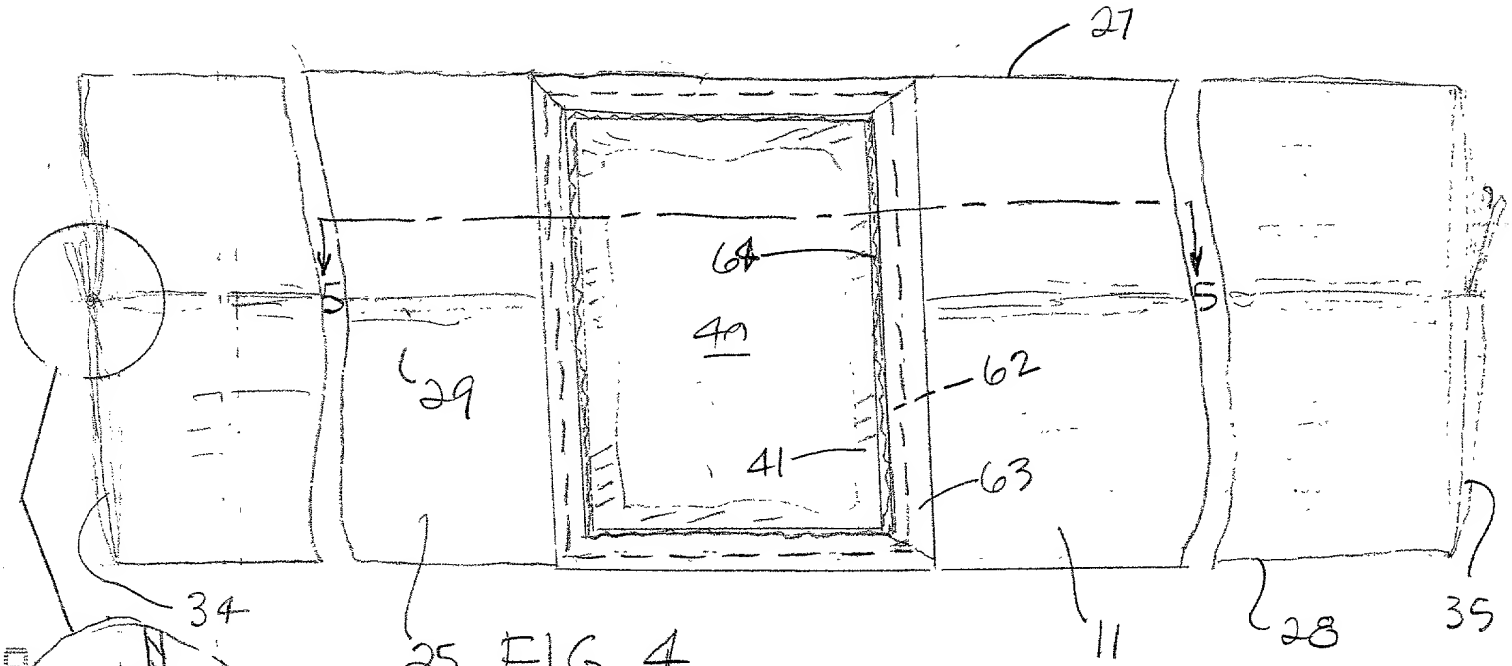

FIG 4

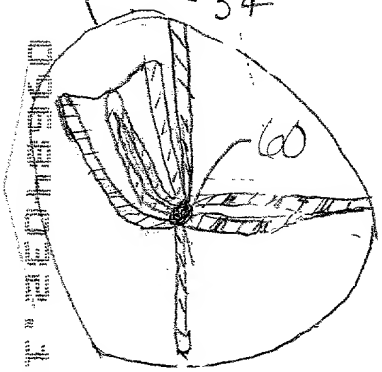

FIG 4a

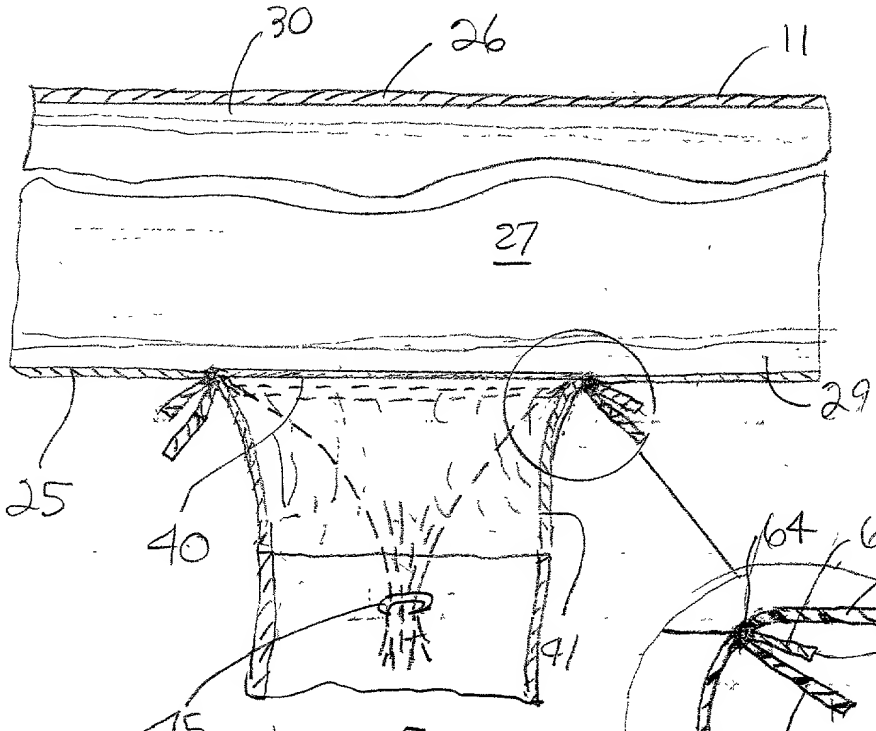

FIG 5

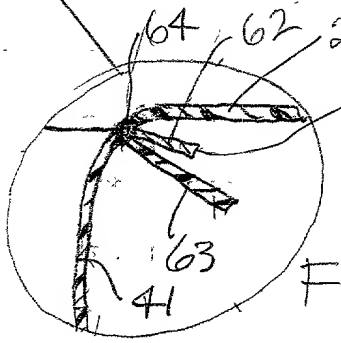

FIG 5a

DOCKET NO.: 420-002

Declaration for Patent Application

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first or joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:
LINER FOR CONTAINER WITH SIDE DOOR

the specification of which

[X] is attached hereto
[ ] was filed on N/A as Application Serial No. N/A and was amended on N/A (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination, including patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

(Number)	(Country)	(Day/Month/Year Filed)	Priority [ ] Yes [ ] No

I hereby claim the benefit under 35 USC § 119(e) of any United States provisional application(s) listed below.

(Application Serial No.)	(Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)	(Filing Date)	(Status)

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint J. Ralph King, Registration No. 22,489; Warren D. Schickli, Registration No. 31,057; Richard C. Stevens, Registration No. 28, 046; Robert L. Showalter, Registration No. 33,579; Michael S. Hargis, Registration No. 42,631; Andrew D. Dorisio, Registration No. 41,713; and J. William Seanor, DVM, Registration No. 40,804 of **KING AND SCHICKLI, PLLC**, Corporate Gateway, Suite 210, 3070 Harrodsburg Road, Lexington, KY 40503, my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected herewith.

Please address all correspondence to: **KING AND SCHICKLI, PLLC**, Corporate Gateway, Suite 210, 3070 Harrodsburg Road, Lexington, KY 40503.

Full name of sole or first inventor: **CHRISTOPHER S. NOLAN**

Inventor's signature: Christopher S Nolan Date 9-26-2020

Residence: Sellersburg, INDIANA 47172

Citizenship: **U.S.**

Post Office Address: 9514 Hwy 60

Full name of second joint inventor, if any:

Second inventor's signature: _____ Date _____

Residence:

Citizenship:

Post Office Address: